REMARKS

Claims 1, 3-22, and 24-34 are pending in the present application after the present amendments. Claims 24-34 have been added. The new claims are supported, *inter alia*, in the claims as filed. Applicants respectfully request reconsideration of the rejections in view of the amended claims.

Rejection under 35 U.S.C. § 112, second paragraph

The Office rejected claim 13 under 35 U.S.C. § 112, second ¶, as allegedly being indefinite for reciting "said second primer." Applicants must respectfully disagree. Claim 13 recites "a second primer wherein said second primer is extended . . . " (emphasis added). Thus, the phrase "said second primer" has proper antecedent basis and Applicants respectfully request that this rejection be withdrawn.

Rejections under 35 U.S.C. § 102(b)

The Office rejected claim 1 under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 5,455,166 to Walker. The Office also rejected claims 21 and 22 under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. patent no. 5,667,976 to Van Ness *et al.* Reconsideration and withdrawal of the rejections is respectfully requested in view of the amendments.

Walker teaches amplification methods and various methods for detecting the reaction products. But Walker provides no disclosure of any process of using the carrier molecules recited in the claims. Walker also fails to provide any motivation for using the recited carrier molecules. Therefore, Walker does not teach every embodiment of present claim 1 and does not anticipate claim 1. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 18 stands rejected as allegedly anticipated by Bronstein. This rejection is respectfully traversed. Claim 18 recites a method where two nucleic acid molecules are each bound to a non-nucleotide carrier molecule. Hybridization of the nucleic acids is detectable because of the

interaction between the respective carrier molecules (e.g., see paragraph 47 of specification). Bronstein discloses the presence of alkaline phosphatase on only one of the nucleic acids in the hybridization. Thus, according to Bronstein, the nucleic acid cannot be detected by the interaction between the macromolecules, since only one is present and no interaction can therefore occur. Furthermore, Bronstein provides no motivation for supplying a second nucleic acid bound to a macromolecule. Therefore, Bronstein does not anticipate or render obvious the present claim.

The Office also rejected claims 21 and 22 under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. patent no. 5,667,976 to Van Ness *et al.*

Van Ness discloses compositions comprising an activated oligonucleotide covalently attached to a polymer-coated bead via an amine linker (Col. 3:28-41; Col. 4:19-21 and 52-54). Van Ness fails to disclose nucleic acids linked to a non-nucleotide carrier macromolecule via one or more moieties derived from divinyl sulfone, and also fails to disclose the use of any of the carrier macromolecules recited in claims 21-22. Thus, Van Ness does not anticipate claims 21 and 22, and Applicants respectfully request that this rejecting be withdrawn.

Rejections under 35 U.S.C. § 103

The Office rejected claims 3-6 under 35 U.S.C. § 103(a), as allegedly being unpatentable under the '166 patent to Walker, in view of U.S. patent no. 5,434,257 to Matteucci *et al.* The Office acknowledges that Walker does not disclose a homopolyamino acid carrier macromolecule, but alleges that Matteucci *et al.* disclose a polylysine conjugated to an oligonucleotide, and that it would have been obvious to use a primer bound with a homopolyamino acid carrier macromolecule "to perform the method recited in claim 3." (Office Action, page 7). Applicants respectfully disagree.

To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to combine the references. Second, the prior art reference must teach or suggest all the claim limitations. Finally, there must be a reasonable expectation of success. (MPEP § 2142).

Walker discloses amplification methods and various methods for detecting the reaction products. For example, Walker discloses a method using a primer modified with an enzyme such as an alkaline phosphatase. Walker fails to disclose primers bound to a water-soluble carrier macromolecule via a divinyl sulfone moiety.

Matteucci *et al.* discloses oligonucleotide analogs having one or more substitute linkages of the formula 2'/3'–S–CH_2–CH = 5' or 2'/3'–O–CH_2–CH = 5' between adjacent nucleomonomers. (See, abstract) as a substitute for the usual phosphodiester linkage. The oligonucleotides are resistant to endogenous nucleases and are able to hybridize to target nucleic acid sequences. Matteucci provides no disclosure regarding primers bound to a water-soluble carrier macromolecule via a divinyl sulfone moiety. Furthermore, Walker discloses alkaline phosphatase as a detection method (Col. 4, line 30), but polylysine does not provide a method of detection in any assay of Walker, and would therefore not be selected as the Examiner suggests. Thus, based on the above, claims 3-6 are not obvious over Walker in view of the Matteucci reference.

The Office also rejected claim 23 under 35 U.S.C. § 103(a), as allegedly being unpatentable under Walker in view of U.S. patent 5,700,921 to Westling *et al.* The Office acknowledges that Walker does not disclose a primer bound to a carrier macromolecule via one or more moieties derived from divinyl sulphone, but alleges that it would have been obvious to use a primer bound to a carrier macromolecule via one or more moieties derived from divinyl sulphone because Westling *et al.* disclose an oligonucleotide bound to a carrier macromolecule via one or more moieties derived from divinyl sulphone. (Office Action, pages 8-9). Applicants respectfully traverse this rejection.

As previously indicated, Walker provides no disclosure of a primer bound to a water-soluble carrier macromolecule via a divinyl sulfone moiety. Westling discloses nucleic acids capable of reacting with a label conjugated to a thiol-reactive group, not a disulfone moiety (or derivative thereof). Furthermore, Westling also fails to disclose the use of primers bound to a water-soluble carrier macromolecule, let alone methods for replicating a nucleic acid template using

such primers. Accordingly, the amended claims are non-obvious over Walker in view of Westling *et al.*, and Applicants respectfully request that this rejection be withdrawn.

New claims 24-34

Furthermore, new claims 24-34 are novel and non-obvious under any reference cited by the Office. In particular, none of the prior art reference cited in the Office action teaches a process for replicating a nucleic acid template using a primer bound to dextran. Thus, Applicants respectfully request that new claims 24-34 be allowed.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket No. 577212000101. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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